

## **Replacement Abstract**

### **ABSTRACT OF INVENTION**

A device for taking ultra-high frequency hydrometric measurements which includes means for generating sine wave trains of incident wave(s) at frequencies assuming several values in arithmetic progression between a few MHz and a few GHz, and has at least one ultra-high frequency cable. The cable includes at least two measuring stations (4) spaced along the cable a predetermined distance apart with each measuring station (4) having a measuring cell (14) and a separator device capable of only sampling a portion of the incident wave(s) with sufficient energy for each measuring cell to send back an echo measurable by electronic read-out means so that the sampling of the incident wave(s) by each measuring station occurs essentially simultaneously. Each measuring cell (14) consists of a ultra-high frequency line portion with its distal end terminated by a short circuit and with the line portion having a circumferential external wall which is either porous or provided with ports. The dielectric of the line portion consists essentially of a sample of homogeneous dielectric material for which permittivity is a monotonous function of the hydrometry in the relevant measurement domain.